

# GRANT & HACKH'S CHEMICAL DICTIONARY

[American, International, European and British Usage]

*Containing the Words Generally Used in Chemistry,  
and Many of the Terms Used in the Related  
Sciences of Physics, Medicine, Engineering,  
Biology, Pharmacy, Astrophysics,  
Agriculture, Mineralogy, etc.*

*Based on Recent Scientific Literature*

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carbon atom: primary a.,  $R\cdot CH_2OH$ ; secondary a.,  $R_2CHOH$ ; tertiary a.,  $R_3COH$ ; (2) the number of OH groups; as,

$R_3COH$	mono-	Prefix	Suffix
$R_2COH$	di-	-hydroxy	ol
$ROH$	tri-		diol
$R(OH)_2$	tetra-		triol
$R(OH)_3$	pent-		tetrol
$R(OH)_4$	poly-		pentol

{ -hydric } a. or { -basic }

See *aromatic alcohols*, *phenols*, and *alcohol acids*. **aldehyde** ~ Compounds containing the  $-CHO$  and  $-OH$  groups. **aromatic** ~ Cyclic compounds containing the  $-OH$  group in a side chain; cf. *phenols*. **primary** ~ Compounds containing the group  $-CH_2OH$ . **secondary** ~ Compounds containing the  $=CH_2OH$  group. **tertiary** ~ Compounds containing the  $\equiv COH$  group.

a. of crystallization The a. contained in a crystalline salt in a molecule; e.g.,  $KOH \cdot 2C_2H_4O$ .

**alcoholysis** The cleavage of a C-C bond by the addition of an alcohol:  $R\cdot CH_2\cdot R' + R''OH \rightarrow R''OCH_2R + R'H$ . Cf. *hydrolysis*.

**Alcometer** See *breath alcohol*.

**alecopol** Trade name for a surfactant of the di(octylsulfosuccinate type).

**alecosol** A sol in alcohol.

**alecumi** A corrosion-resistant alloy: Cu 88-90, Al 7.5, Fe 28.35, Ni 1%.

**aleryl** Alicyclic. An aliphatic-cyclic radical; a saturated aromatic radical.

**Aldactone** Trademark for spironolactone.

**aldaloketose** A carbohydrate containing the aldehyde ( $-CHO$ ), alcohol ( $-OH$ ), and carbonyl ( $=CO$ ) radicals.

**aldebaranum** Thulium\*.

**aldehydase** Aldehyde oxidase\*, which forms acids from aldehydes.

**aldehyde** (1) Acetaldehyde\*. (2) See *aldehydes*. **acetic** ~ Acetaldehyde\*. **anisic** ~ Anisaldehyde\*. **cinnamic** ~ Cinnamaldehyde\*. **cuminic** ~ Cumic a. **heptylic** ~ Heptanal\*. **met-** See *metaldehyde*. **nonanthic** ~ Heptanal\*. **par-** See *paraldehyde*. **propionic** ~ Propionaldehyde\*. **pyromuonic** ~ Furaldehyde\*. **salicylic** ~ Salicylaldehyde.

a. ammonia (1) A compound formed by the combination of an a. and ammonia. Crystalline, decomp. on warming with dilute acid; used for the purification of aldehydes. (2)  $MeCH(OH)NH_2 = 61.1$ . Colorless crystals, m.97, soluble in water. a. condensation See *aldol condensation*. a. group The  $-CHO$  radical, in which the H is not replaceable by a positive radical, but can be replaced by negative atoms or groups. Cf. *aldehydes*. a. ketone  $R\cdot CO\cdot R\cdot CHO$ . **Ketoaldehyde**, a. **oxido** See *aldehydase*.

**aldehydene** Acetylene\*.

**aldehydes\*** Organic compounds containing the  $-CHO$  radical, oxidized to acids and reduced to alcohols. A. are indicated by the prefix *oxo*\* (for O of CO) or *formyl*\* (for CHO), or by the suffix *-al*\*, *-dial*\*, *-trial*\*, *-(carb)aldehyde*\*, etc. **di** ~ Compounds containing 2 a. groups. **olefin** ~ Compounds containing a double bond and the a. group. **paraffin** ~ Compounds containing the a. group attached to a saturated aliphatic chain. **thio** ~ Compounds containing the  $-CH_2S$  group.

**-aldehydic** Suffix indicating that one COOH group in a dicarboxylic acid, with a trivial name, has been changed into a CHO group; as malonaldehydic acid,  $OHC\cdot CH_2COOH$ . **a.** hydrogen The H atom of the aldehyde group; not readily replaced by metals.

**aldehydine**  $C_6H_5NMeEt = 121.2$ . 2-Ethyl-5-methylpyridine. Colorless liquid, d<sub>25</sub> 0.9918, b.173, insoluble in water.

**aldicarb\*** See *insecticides*, Table 45.

**aldime**  $R\cdot CH(NH)$ . An acid imine.

**aldobionic acids** Oxidized trisaccharides; as, gluco- $\beta$ -glucuronic acid, from the hydrolysis of flaxseed mucilage.

**aldohexose\*** A hexose containing the aldehyde group; e.g., glucose. Cf. *ketohexose*.

**aldoketones** See *ketenes*.

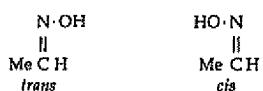
**aldol**  $Me\cdot CHOH\cdot CH_2\cdot CHO = 88.1$ . (1)  $\beta$ -Hydroxybutyric aldehyde, 3-hydroxybutanal\*. A condensation product of acetaldehyde. Colorless liquid, d.1.109, soluble in hot water. Its solution leaves a polymer, paraldol, on evaporation. Cf. *paraldehyde*, *metaldehyde*. (2) One of a class of condensation products formed from an aldehyde. a. condensation The polymerization of an aldehyde in presence of dilute acid or alkali; e.g., aldol formation. The aldol polymer is stabler than the meta and para polymers. Three types: (1) true aldol condensation:  $R_2CO + H\cdot CH_2COR \rightarrow R_2C(OH)\cdot CH_2\cdot COR \rightarrow R_2C\cdot CH\cdot COR$ . (2) Cannizzaro reaction:  $2R\cdot CHO \rightarrow R\cdot COOH + R\cdot CH_2OH$ . (3) Claisen condensation:  $2R\cdot COOR' \rightarrow RC(OH)\cdot CHCOOR' + R'OH$ .

**aldolase\*** See *enzymes*, Table 30.

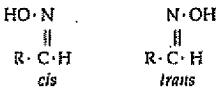
**aldonic acids** Acids produced by gentle oxidation of the corresponding aldoses; as, gluconic acid from glucose. **aldopentose\*** A pentose containing the aldehyde group; as, arabinose.

**aldose\*** A carbohydrate containing the aldehyde group. Cf. *ketose*, *sugar*.

**aldoxime**  $C_2H_5ON = 59.1$ . Acetaldoxime. Colorless liquid, b.115, soluble in water; used in organic synthesis. Isomeric forms:



**aldoximes\*** Organic compounds containing the  $-C(H):NOH$  group. Stereoisomers:



Form C-, N- and O-substituted compounds.

**aldrey** A noncorroding aluminum alloy, used for transmission lines: Mg 0.4, Si 0.6, Fe 0.3%.

**aldrin\*** See *insecticide*, Table 45 on p. 305.

**alembic** (1) Ancient name for a retort. (2) Figuratively, anything that purifies.

**aletris** False unicorn, starwort, blazing star, colic root, star grass, bitter grass, devil's bit. The dried rhizomes of *Aletris farinosa* (Haemodoraceae) of the United States.

**Aleurites** (1) The Chinese wood or tung oil plant. (2) A genus of trees (Euphorbiaceae) of the warmer zones of Asia which yield oil; as, *A. cordata*, tung oil.

**aleuritic acid**  $C_{16}H_{32}O_5 = 304.4$ . 9,10,16-Trihydroxypalmitic acid, m. 102, from the shellac of *Aleurites montana*.

**aleurometer** A cylinder for testing the baking capacity of flour from the expansion of its gluten.

**aleuronate** A vegetable protein food. A tasteless, yellow powder. a. powder Baked flour mixed with cooked starch for injection into the pleural cavity of animals (rabbits) to stimulate the production of leucocytes. Cf. *leucocyte*.

**aleurone** Protein grains in the endosperm of ripe seeds.

and amino group, formed by the action of ammonia on ketones. Cf. *polypeptide*.

**ketocoumaran** *Oxodihydrobenzofuran*\*

**ketoadestrin** Estrone.

**ketohexose**\* A monosaccharide of 6 C atoms, with a ketone group rather than an aldehyde group; e.g., fructose. Cf. *aldohexose*.

**ketohydroxyestrin**  $C_{18}H_{32}O_2 = 270.4$ . A hormone from the urine of pregnant women and mares; an anhydride of estriol. Cf. *sterols*.

**ketoimine** A compound containing an imino and carbonyl group.

**ketindole** Oxindole.

**ketoketenes** See *ketenes*.

**ketol** Ketone alcohols. A compound containing a carbonyl and hydroxy group. *alpha*-~ A compound containing the  $R-CO-CH_2OH$  group. *beta*-~ A compound containing the  $R-CO-CH_2-CH_2OH$  group. *saturated* ~ An  $\alpha$ - or  $\beta$ -ketone alcohol. *unsaturated* ~ Acetylvinyl alcohols; A compound containing the unsaturated  $R-CO-CH:CHOH$  group.

**ketole** Indole\*.

**ketone**\*  $R-CO-R$ . An organic compound containing the carbonyl group,  $=CO$ , joined to 2 C atoms. Nomenclature: naming the 2 radicals before the term *ketone* or attaching the suffix *-one* to the hydrocarbon;  $CH_3-CO-CH_3$  is dimethyl ketone or propanone (acetone); or attaching the prefix *oxo*-, or the suffix *-quinone*. Classification: (1) Aliphatic, saturated: acetone\*, propanone\*,  $Me-CO-Me$ . (2) Aliphatic, unsaturated: 3-buten-2-one\*,  $MeCOCH=CH_2$ . (3) Aliphatic, diketones\*: biacetyl\*, 2,3-butanedione\*,  $MeCOCOMe$ . (4) Cyclic: cyclobutanone\*,  $CO-CH_2-CH_2-CH_2$ . (5) Quinones:

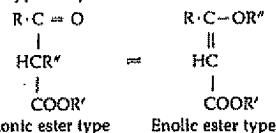
**benzoquinone**,  $CO-CH=CH-CO-CH=CH$ . (6) Aromatic:

**acetophenone**,  $Ph-COMe$ . **acid** ~ Ketone acid\*. **aldehyde** ~ A compound containing the  $=CO$  and  $-CHO$  groups. **amino** ~ Ketoamine. **benzyl phenethyl** ~  $PhCH_2-CH_2-CO-CH_2-Ph = 224.3$  Colorless liquid, m. 324, soluble in alcohol. **butyl methyl** ~ 2-Hexanone\*. **di** ~ See *diketone*.  **dibutyl** ~ 5-Nonanone\*.  **diethyl** ~ 3-Pentanone\*.  **diheptyl** ~ 8-Pentadecanone\*.  **dimethyl** ~ Acetone\*.  **dipropyl** ~ 4-Heptanone\*.  **ethyl methyl** ~ 2-Butanone\*.  **ethyl pentyl** ~ 3-Octanone\*.  **ethyl propyl** ~ 3-Hexanone\*.  **heptyl methyl** ~ 2-Nonanone\*.  **methyl naphthyl** ~  $C_{10}H_7-CO-Me = 170.2$ , 1-~ Acetonaphthone. Colorless crystals, m. 34, soluble in alcohol.  **methyl pentyl** ~ 2-Heptanone\*.  **methyl propyl** ~ 2-Pentanone\*.  **methyl isobutyl** ~  $(C_4H_9)_2CO-Me = 126.2$ , Colorless liquid, b. 213.  **mixed** ~ A k. with 2 different radicals attached to the carbonyl group; as,  $Me-CO-Et$ , ethyl methyl k.  **nitroso** ~ A compound containing the  $=CO$  and nitroso groups.  **olefin** ~ A k. of the alkene series.  **paraffin** ~ A k. of the alkane series.  **phenyl thienyl** ~  $(C_6H_5)SCOPh = 188.2$ , Colorless crystals, m. 55, soluble in alcohol.  **simpto** ~ A k. with the same 2 radicals attached to the carbonyl group.  **tri** ~ A compound containing 3 carbonyl groups.

**k. acid**\* Oxo acid. A compound containing the radicals  $=CO$  and  $-COOH$ . **alpha**-~ A compound containing the radical  $-CO-COOH$ , e.g., pyruvic acid or 2-oxopropanoic acid. **beta**-~ A compound containing the radical  $-COCH_2-COOH$ , e.g., acetoacetic acid. **gamma**-~ A compound containing the radical  $-CO-CH_2-CH_2-COOH$ , e.g., levulinic acid. **delta**-~ A compound containing the radical  $-CO-CH_2-CH_2-CH_2-COOH$ , e.g., acetylbutanoic

acid. **k. alcohol** See *ketol*. **k. base** Michler's k. **k. bodies** Acetone bodies. Collective term for acetone, acetoacetic acid, and 3-hydroxybutanoic acid, which accumulate in the blood in diabetes, starvation, and vomiting. See *ketosis*. **k. color** An artificial color containing the carbonyl group, e.g., alizarin, k. form See *ketonic ester type*. **k. group** The carbonyl,  $=CO$ , group attached to 2 C atoms; it usually confers reducing powers.

**ketonic** Pertaining to a ketone. **k. ester type** An isomer of an enolic ester-type compound:



Cf. *desmotropism*.

**ketonuria** Acetonuria. The excretion of acetone in urine, as occurs in ketosis.

**ketose**\* A sugar containing a ketone group. Cf. *aldose*.

**ketoside** A glucoside which yields a ketose on hydrolysis.

**ketosis** The presence of ketone bodies in the blood.

**ketotriazole** Triazolone.

**ketoxime** (1)\* Acetoxime. A compound containing the  $=C:NOH$  group, e.g.,  $Me_2CN\cdot OH$ , acetoxime. (2) A compound containing the  $-HC\cdot NO-$  group. Cf. *Beckmann rearrangement*. **tetra** ~ See *diphenyltetraketoxime*.

**Kevadon** Trademark for thalidomide.

**Kevlar** Trademark for a high-strength aramid.

**key atom** (1) An atom in a chain whose change in electronic structure induces corresponding changes in the other atoms of the chain. (2) An atom in a ring whose oscillations cause a shift of bonds. Cf. *porphyrin ring*.

**kg** Abbreviation for kilogram.

**kgf** Abbreviation for kilogram force.

**khat** Caffe, Arabian tea. The dried leaves of *Catha edulis*; a tea.

**khelin** Khellin. A synthetic dimethoxymethylfuranochromene derivative, used for its specific coronary vasodilatory activity. Also obtained from the seeds of the wild Mediterranean plant *Ammi visnaga*, Lam.

**Khotinsky, Achilles de** (1850-1933) Russian-born American instrument designer. **de K. cement** A cement for glass and porcelain; insulating, covering, and connecting electric wires, glass, rubber, wood, etc.; resistant to ordinary solvents.

**kibbled** Broken up into small lumps of about 1 cm diameter.

**kidney** A paired mammalian organ that eliminates nitrogenous waste from the bloodstream; also controls the water concentration and electrolyte content, and, in part, the acid-base equilibrium. Much of the filtrate is reabsorbed, together with useful substances, as, amino acids, glucose, salt, proteins. See *glomeruli*.

**kidney ore** Red hematite.

**kieselguhr** Diatomite. Tripoli powder. Guhr. A diatomaceous or infusorial earth. Used as an absorbent for nitroglycerin (dynamite), in chromatography, for filtration and insulation, and as an abrasive in soaps.

**kieserite**  $MgSO_4 \cdot H_2O$ . A native magnesium sulfate. White, compact masses in the Stassfurt salt beds.

**Kikuchi lines** The black and white lines which appear when a stream of electrons is scattered by a crystal surface. Cf. *electron microscope*.

**killesen** Irish moss.